

REMARKS/ARGUMENTS

Claims 1-22 remain in this application. Claims 1, 5, 16 and 17 have been amended.

Double Patenting

In response to the double patenting rejection, a Terminal Disclaimer is filed concurrently with this paper.

§112 Rejections

The Examiner has rejected claim 16 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner states that there is insufficient antecedent basis for the limitation "said at least one additional directional transmit command" in line 2.

To correct this problem, the word "said" has been deleted from the phrase.

§103 Rejections

The Examiner has rejected claims 1 and 17-22 under 35 U.S.C. §103(a) as being unpatentable over Creek (US5771002) in view of Anders (US4656463) or Chen (US6300905). Claims 2-4, 6-10 and 13-16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Creek (US5771002) in combination with Anders (US4656463) or Chen (US6300905) in view of Wang (US5912644) or MacLellan (US5940006). Claims 5 and 11-12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Creek (US5771002) in combination with Anders (US4656463) or Chen (US6300905) in view of Wang (US5912644) or MacLellan (US5940006) in further view of Gelvin (US6832251). The Examiner's rejections are traversed.

In rejecting claim 5 which limits the amplitude measured in claim 1 to the amplitude of the first Multipath component, the Examiner suggests that it would have been obvious to one of ordinary skill in the art to combine the teachings of Gelvin with those of Creek in combination with Anders or Chen in view of Wang or MacLellan.

However, Applicant would like to point out that Gelvin clearly teaches in column 42, lines 17-33, that the use of the first arrival as the range estimate is limited to acoustic signals.

“...Radio frequency signals will have negligible multipath delay spread (for timing purposes) over short distances. However, an acoustic signal in a 10 meter room could reasonably experience delay spreads on the order of the room dimension divided by the velocity, or 0.03 s. The multipath is resolved so as to use the first arrival as the range estimate. If there is no line of sight and all arrivals are due to multipath, then the ranging will only be approximate. If a time-hopped (impulse) or direct sequence spread spectrum method is used, then the means for resolving the multipath is a RAKE receiver. There do not need to be enough RAKE fingers to span the entire delay spread (although the more the better in terms of robustness of acoustic communications). The time spacing of the taps is determined by the required position resolution and thus bandwidth of the ranging waveform. Thus, if 1 cm accuracy is desired, the tap spacing has to be 30 microseconds...” (emphasis added)

Gelvin clearly teaches that for other signals another means for resolving the multipath are used, such as a RAKE receiver.

Therefore, while one of ordinary skill in the art may have found it obvious to combine the teachings of Creek with Anders or Chen together with Wang or MacLellan and Gelvin, Applicant asserts that such a device would be differentiated from the device of the present invention. Nor is there hint or suggestion in the suggested combination to use the measurement of the amplitude of the first Multipath Radio Frequency component to determine direction.

This is on contrast to the teaching of the instant application as taught on page 23, lines 7-18,

“...In order to acquire rough directional information, the antenna of device 6 the reader is a directional antenna, as disclosed above. The received signal amplitude of the first path in the multi-path by a directional antenna is a non-linear function of the angles between the main axes of directional antenna 8 to RF tag 4 direction. As a result, the relative amplitude of the first path in the multi-path to the maximum approximated value approximately defining a spatial angle that is indicating the direction from where the signal propagated with a right-left ambiguity. The received signal amplitude, preferably of the first path, is transferred to display controller 10 that is indicating the user about the relative amplitude of the received signal compared with the estimated maximum received signal. In order to find the transmitting RF tag 4, the user manually points device to the direction of maximum received signal amplitude...” (emphasis added)

and as claimed in claim 5. Therefore, Applicant asserts that the combination as suggested by the Examiner, does not fairly produce a device that would render the present invention unpatentable.

While continuing to traverse the Examiner's rejections, the Applicant, in order to expedite the prosecution of the instant application, has chosen to amend the claims so as to better differentiate the present invention over the cited prior art. Specifically, independent claims 1 and 17 have been amended to now include the limitation that the amplitude measured is an amplitude of the first Multipath component.

The Applicant believes that the amendment to claims 1 and 17 and the arguments presented herein completely overcome the Examiner's rejections of these claims on § 103(a) grounds. Independent claim now considered to be allowable renders any rejections of their respective dependent claims moot.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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